OCEAN GALES AND STORMS, DECEMBER 1939—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began December	Time of lowest barometer, December	Gale ended December	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH PACIFIC OCEAN—Contd.								*Millibars*					
Arizonan, Am. S. S.	Los Angeles	Balboa	15 15 N.	95 00 W.	6	3a, 7	7	1,0014.6	NE.	N, 6	NNW.	NNE, 8	NE-NNW.
Teal, U. S. S.	North Bend	Seattle	[1] 48 30 N.	124 40 W.	7	2p, 7	7	1,001.0	SSE.	SSE, 5	SSE.	SSE, 10	
Swiftsure Bank Lightship, U. S.	On station		48 33 N.	125 00 W.	7	4p, 7	7	997.0		SE, 9		SE, 9	
Marchen Maersk, Dan. M. S.	Los Angeles	Yokohama	34 30 N.	146 40 W.	6	9a, 7	9	996.5	SW.	SSW, 8	NNW.	NW, 10	SSW-W.
Kaizyo Maru, Jap. M. S.	do	Tokuyama	32 42 N.	155 27 W.	7	1a, 8	8	1,001.0	W.	W, 8	NW.	WNW, 8	
Kansan, Am. S. S.	Bellingham	Los Angeles	[1] 48 24 N.	124 57 W.	8	10a, 8	8	986.1	SE.	SE, 9	S.	S, 10	SE-S.
Brajara, Nor. M. S.	San Luis	Yokohama	32 54 N.	153 24 W.	7	2p, 7	8	1,002.1	NW.	WNW, 7	NW.	NW, 9	W-NW.
Madoera, Du. M. S.	Cebu	Los Angeles	17 46 N.	137 00 E.	6	5p, 8	9	995.2	NNW.	ESE, 8	ESE.	ENE, 9	
Mauna Loa, Am. S. S.	Portland, Ore.	Honolulu	30 06 N.	143 30 W.	9	3p, 8	9	1,007.8	NW.	WSW, 5	NW.	NW, 8	
Huguenot, Am. S. S.	Los Angeles	Seattle	40 49 N.	124 48 W.	9	10p, 9	9	999.3	S.	SSE, 11	W.	SSE, 11	SE-SSE-W.
Manulani, Am. S. S.	do	Honolulu	30 30 N.	133 18 W.	9	6p, 9	10	1,003.7	SSW.	SSW, 8	WNW.	W, 8	SSW-WNW.
Svealborg, Swed. M. S.	Genzan	San Luis	44 07 N.	175 14 E.	9	9p, 9	11	991.9	S.	S, 9	WNW.	WNW, 11	S-W.
do	do	do	41 18 N.	166 00 W.	11	1a, 12	12	989.2	SSE.	SW, 9	SW.	S, 11	SSE-SW.
Marchan Maersk, Dan. M. S.	Los Angeles	Yokohama	34 12 N.	174 48 W.	10	1p, 12	12	1,009.5	WNW.	WSW, 6	SW.	SSW, 9	SW-W.
S. C. T. Dodd, Am. S. S.	Vladivostok	San Francisco	40 51 N.	154 11 E.	11	Noon, 11	15	992.2	WNW.	NW, 8	NW.	W, 12	SSE-NW-W.
Corneville, Nor. M. S.	Hong Kong	Los Angeles	[1] 38 40 N.	176 07 E.	11	2p, 12	13	997.6	S.	W, 7	W.	SW, 11	
Gefion, Nor. M. S.	Yokohama	Estero Bay	39 36 N.	173 06 E.	12	8p, 12	14	997.0	W.	W, 9	WNW.	W, 10	
Daiiti Ogura Maru, Jap. M. S.	do	Los Angeles	39 50 N.	169 10 W.	12	4p, 13	15	[2] 982.4	WNW.	W, 9	WNW.	W 10	None.
Syoyo Maru, Jap. M. S.	Los Angeles	Genzan	36 42 N.	178 54 W.	11	12a, 12	15	999.7	SW.	WSW, 4	WNW.	WNW, 10	SW-WSW.
Huguenot, Am. S. S.	Seattle	Portland, Ore.	47 44 N.	124 46 W.	14	12m, 14	15	997.0	SSE.	ESE, 8	SW.	SE, 9	S-ESE-SSW.
Hokuroku Maru, Jap. M. S.	Yokohama	San Francisco	41 40 N.	154 30 E.	14	6a, 15	17	994.0	SE.	NW, 8	W.	NW, 9	
S. C. T. Dodd, Am. S. S.	Vladivostok	do	39 21 N.	179 00 W.	15	2p, 15	16	984.8	ESE.	W, 9	NNW.	W, 10	SW-W.
Marchen Maersk, Dan. M. S.	Los Angeles	Yokohama	34 10 N.	171 52 E.	15	10p, 15	16	1,003.5	S.	W, 9	NNW.	WNW, 10	S-WNW.
Columbia Maru, Jap. M. S.	Hakodate	Los Angeles	40 08 N.	166 34 E.	15	4a, 16	17	994.9	W.	W, 11	NW.	NW, 12	None.
Syoyo Maru, Jap. M. S.	Los Angeles	Genzan	38 12 N.	174 18 E.	16	3a, 16	17	984.4	WSW.	W, 9	WNW.	WNW, 11	SW-WNW.
Hokuroku Maru, Jap. M. S.	Yokohama	San Francisco	47 12 N.	171 30 W.	18	1a, 19	18	963.8		ENE, 4		E, 9	
S. C. T. Dodd, Am. S. S.	Vladivostok	do	38 47 N.	159 10 W.	18	6a, 19	19	1,000.0	S.	S, 8	WSW.	S, 10	S-SW.
Makiki, Am. S. S.	Seattle	Honolulu	46 00 N.	129 55 W.	17	10p, 18	20	1,004.7	SSE.	S, 4	W.	W, 9	SSE-S.
S. C. T. Dodd, Am. S. S.	Vladivostok	San Francisco	38 35 N.	152 30 W.	20	4p, 20	20	997.3	S.	SSE, 12	SSE.	SSE, 12	SSE-SSW.
Hokuroku Maru, Jap. M. S.	Yokohama	do	47 00 N.	158 00 W.	20	2p, 20	21	960.4		SE, 6		SW, 9	
Makiki, Am. S. S.	Seattle	Honolulu	38 35 N.	138 25 W.	21	11p, 21	22	1,014.6	SSE.	SW, 4	Var.	S, 8	S-SW.
Do	do	do	31 00 N.	142 52 W.	23	10a, 24	24	1,005.1	SE.	S, 8	W.	SW, 9	S-WSW.
Hikawa Maru, Jap. M. S.	Yokohama	Vancouver	50 00 N.	138 57 W.	25	2p, 24	25	994.2	SSE.	SE, 7	SSE.	SSE, 8	SE-S.
Aobasan Maru, Jap. M. S.	do	San Francisco	46 15 N.	149 34 W.	26	12m, 26	26	971.3	ENE.	NW, 8	W.	ENE, 9	N-W.
Do	do	do	42 42 N.	135 24 W.	28	3p, 28	28	982.4		SSE, 8		SSE, 8	
Skjelbred, Nor. M. S.	Masinloc, P. I.	Los Angeles	33 37 N.	145 49 W.	28	8p, 29	30	990.7	SSE.	SW, 8	WSW.	WSW, 8	SE-SW.
San Simeon, Am. S. S.	Portland, Ore.	Seattle	48 20 N.	125 10 W.	30	6a, 31	31	998.6	NE.	ENE, 8	SE.	NE, 8	NE-SE.
Matsouia, Am. S. S.	Los Angeles	Honolulu	[1] 27 13 N.	143 59 W.	31	[3] 4p, 2	[3] 2	1,004.4	SW.	W, 8	W.	SSW, 9	SSW-W.

[1] Position approximate. [2] Barometer uncorrected. [3] January. [4] November.

NORTH PACIFIC OCEAN, DECEMBER 1939

By WILLIS E. HURD

Atmospheric pressure.—Subnormal pressures, on the average, covered the northern and eastern parts of the ocean. The abnormality was most pronounced, however, in the extreme northeastern part, from the central Aleutian region eastward across the Gulf of Alaska. The center of the Aleutian LOW was not far from Kodiak, where the average pressure, 986.9 millibars (29.14 inches), was 14.1 millibars (0.42 inch) below the normal of the month. This average barometer at Kodiak is the lowest of record for December at the station during the past 14 years.

The North Pacific anticyclone was much restricted this month, and, on the average, extended as a narrow belt from the central California coast southwestward to Midway Island, then westward to the China coast. The continental Asiatic anticyclone was abnormally developed for December over the oceanic extent eastward to the Ogasawara Islands. At Naha, in the Nansei group, the average pressure was 1,022.8 millibars (30.20 inches), which was 7.6 millibars (0.22 inch) above the normal of the month.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, December 1939, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	*Millibars*	*Millibars*		*Millibars*	
Point Barrow	1,008.5	−8.3	1,023	28	996	14
Dutch Harbor	992.3	−8.7	1,012	31	969	1
St. Paul	998.8	−2.9	1,019	31	981	21
Kodiak	986.9	−14.1	1,004	31	967	21
Juneau	999.7	−9.1	1,023	21	973	3
Tatoosh Island	1,012.2	−2.4	1,030	21	986	10
San Francisco	1,019.6	−0.4	1,027	20	1,005	23
Mazatlan	1,013.0	−0.5	1,017	29, 30	1,010	19
Honolulu	1,015.9	−0.4	1,020	12	1,008	27
Midway Island	1,017.5	+1.2	1,027	8	1,006	28
Guam	1,010.5	−1.0	1,016	31	998	22
Manila	1,011.2	0.0	1,016	12, 25–27, 29	999	3
Hong Kong	1,022.7	+3.7	1,026	27, 28	1,018	9
Naha	1,022.8	+7.6	1,027	11, 13	1,017	9, 22
Titijima	1,018.9	+3.0	1,029	28	1,011	23
Petropavlovsk	1,002.4	−0.7	1,016	14	984	27

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Extratropical cyclones and gales.—Numerous cyclones crossed the northern waters of the ocean during December 1939, and the result was a month of frequent storminess in most areas north of the thirtieth parallel. In several instances the principal heavy gales reported occurred far to the southward of the storm centers. Winds of the higher velocities—forces 11 to 12—were encountered on 7 days, with an almost ocean-wide distribution between about latitudes 35° and 45° N. The dates of their occurrences were the 2d, 9th, 10th, 11th, 12th, 16th, and 20th. On a number of other dates gales were reported of force as high as 10.

As an indication of the widespread nature of the month's storminess, it may be mentioned that the American steamer *S. C. T. Dodd*, while on a voyage from Vladivostok toward San Francisco, ran into gales on December 11, near 41° N., 153° E., and thereafter had stormy weather daily until the 20th, inclusive, when near 39° N., 152° W. During this period she encountered hurricane velocities on the 12th, near 41° N., 160° E., and on the 20th, near 39° N., 153° W. The Danish motorship *Marchen Maersk*, while on a voyage from Los Angeles toward Yokohama, had frequent gales, highest force 10, from the 6th to 16th, between about 35° N., 143° W., and 34° N., 170° E.

Off the western coast of the United States important gales were noted near Washington on the 7th, 8th, 14th, 19th, and 31st, and near California on the 9th.

Tropical cyclones and gales.—Press dispatches and two vessel reports indicate two typhoons noted over and near the Philippine Islands. The earlier of these was felt from the 2d to the 8th, and was of marked severity. About 40 lives are indicated as lost either at sea or as a result of landslides and floods, and there was great damage to small boats, property, and crops.

The second storm, about a fortnight later, resulted in serious losses because of heavy rains in northern Luzon.

A Tehuantepecer was encountered on the night of the 6th, 7th, the greatest wind force being 8.

Fog.—There was fog on 8 days off the California coast and on 3 days off Lower California. To the southwestward of the Isthmus of Tehuantepec and the coast of Central America a little fog occurred within the period 23d-26th.

Over the western North Pacific fog was reported a few times, between latitudes 30° and 47° N. Both the localities of occurrence and the dates were widely scattered.